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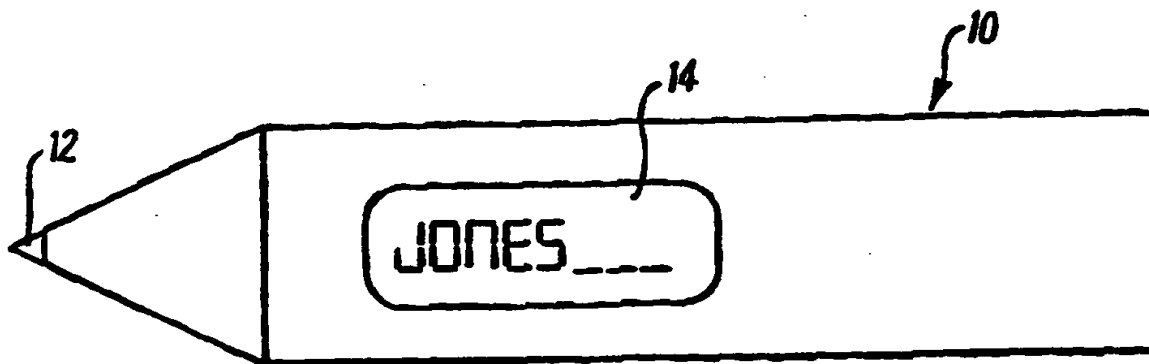
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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : G07C 1/10	A1	(11) International Publication Number: WO 97/06513 (43) International Publication Date: 20 February 1997 (20.02.97)
(21) International Application Number: PCT/GB96/01947 (22) International Filing Date: 9 August 1996 (09.08.96) (30) Priority Data: 9516415.8 10 August 1995 (10.08.95) GB (71) Applicant (for all designated States except US): TIMOS SYSTEMS LIMITED [GB/GB]; 99 Main Street, Ratho, Edinburgh EH28 8RS (GB). (72) Inventors; and (75) Inventors/Applicants (for US only): AMOS, David, George [GB/GB]; 99 Main Street, Ratho, Edinburgh EH28 8RS (GB). LEESE, Mark, John [GB/GB]; 1/3 25 Napier'shall Street, Glasgow G20 6EZ (GB). (74) Agent: PACITTI, Pierpaolo, A., M., E.; Murgitroyd & Company, 373 Scotland Street, Glasgow G5 8QA (GB).		(81) Designated States: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, US, UZ, VN, ARIPO patent (KE, LS, MW, SD, SZ, UG), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>

(54) Title: RECORDING SYSTEM



(57) Abstract

A recording system and its method of operation for the collection and reporting of information relating to the occurrence and/or timing of activities, events, or conditions. The recording system has inputting means for inputting and internally storing information identifying the activity, etc.; time recording means for internally recording the timing and/or duration of the activity, etc.; and downloading means for subsequently and selectively downloading internally stored information directly to an external computer for processing of the information. The recording system is realised as a hand-held device (10; 20; 30) which is highly portable and easily operated, allowing contemporaneous recording without reliance on the user's memory of events. Unlike a multi-task computer terminal, the recording system is dedicated to its single use, and is always available. The invention is applicable to work records, medical experiments, and sociological monitoring.

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1 "Recording System"

2
3 This invention relates to a recording system, and
4 relates more particularly but not exclusively to a
5 system for recording the occurrence and/or timing of
6 activities, events or conditions for the purpose of
7 time measurement within commerce, industry, education
8 and scientific/medical/pharmaceutical/consumer
9 research. Such recording may be used, for example, for
10 the purposes of the evaluation or monitoring of
11 processes, customer billing, speed of task performance,
12 or noting changes in physiological parameters over
13 time. The information generated by this recording is
14 normally collated and manipulated after the point of
15 recording in a variety of ways according to its
16 application.

17
18 In this field systems already exist to perform the act
19 of recording. These known systems include:

20
21 a) the simple writing down, by means of pencil and
22 paper, of activity, date, time and duration, eg, in the
23 form of a table. The act of writing these details may
24 occur at the time of the activity being recorded, or at
25 an earlier or later time. This form of recording is,

1 in the case of the record of an employee's time, called
2 a time sheet.

3
4 b) manual entry of the details of the information
5 into a computer, probably in the form of a database.
6 In the case of a desk-top computer this will often take
7 place after the activity, for example when the computer
8 is not to hand at the time that the activity takes
9 place. The paper and pencil system at a) may be used
10 as an aide memoire to facilitate this system.

11
12 c) manual entry of the details of the activity into a
13 computer, typically a portable computer, at the time at
14 which they occur.

15
16 Known recording systems have various limitations and
17 disadvantages. The paper and pencil system suffers
18 from a lack of accuracy, particularly if performed
19 before or after the activity itself. Furthermore it is
20 inherently inconvenient, requiring the relatively
21 complex and time consuming act of manually making the
22 record entry. In practice, it is noted that time
23 sheets in industry and commerce are often compiled from
24 memory, commonly up to a week after events being
25 recorded, with concomitant loss of accuracy. This
26 system suffers from a further disadvantage, namely that
27 the information is not in a suitable form for
28 subsequent use of manipulation by computer (eg
29 producing billing information, incorporation in
30 management reports). To do so requires copying of the
31 information by hand into a computer database. This
32 last disadvantage is overcome by the computer-based
33 system mentioned at b) above, but suffers another
34 disadvantage - to achieve good accuracy, the computer
35 has to be available at the time. If it is not then
36 either the individual's memory is relied on, or a paper

1 and pencil system is interposed, and the disadvantages
2 of complexity and time consumption detailed above are
3 still present.

4
5 The system mentioned at c) above represents, in some
6 respects, the current best practice, and fully gets
7 round the problems of inaccuracy and dependence on a
8 permanently-sited computer. However, there still
9 remains the primary disadvantage of all computer-based
10 time recording, namely that the device used to enter
11 the information is a computer and that the individual
12 performing the recording has to be able to use that
13 computer to make the recording. The complexity of
14 operating the computer represents a real obstacle to a
15 large spectrum of those for whom time recording would
16 be advantageous, either for themselves or for their
17 employers, and may offer little or no reduction in the
18 time taken by the user in the act of recording.
19 Further, computing resources may be committed to other
20 tasks at the time that recording is required.

21
22 According to a first aspect of the present invention
23 there is provided a recording system for the collection
24 and reporting of information relating to the occurrence
25 and/or timing of activities, events, or conditions, the
26 recording system comprising

- 27
28 (a) inputting means for inputting and internally
29 storing information identifying or otherwise
30 relating to an activity, event, or condition;
31
32 (b) recording means for recording and internally
33 storing information relating to the duration
34 and/or time of occurrence of said activity, event,
35 or condition; and
36

1 (c) downloading means for subsequently and selectively
2 downloading the internally stored information to
3 an external computer for processing of the
4 information therein.

5
6 Said inputting means preferably comprises a plurality
7 of input means, each said input means being associated
8 with a preselected activity, event, or condition. Each
9 said input means is preferably capable of being
10 associated with selected types and/or classes of
11 activity, event, or condition. Said inputting means
12 may contain a source of pre-stored signals representing
13 predetermined activities, events, or conditions, and
14 the source may be such that a predetermined signal may
15 be selected by scrolling through the pre-stored
16 signals. Said inputting means may include audio signal
17 generation means operable to indicate correct selection
18 of an input means and/or to indicate the elapse of a
19 predetermined period of time associated with a
20 particular activity, event, or condition. The
21 inputting means may comprise a bar-code reader means
22 preferably comprising visual display means operable to
23 display a de-coded reading or to display an alternative
24 message otherwise indicative of a read bar-code.

25
26 The recording means preferably comprises clock means
27 which may indicate absolute time (ie time of day, and
28 date) and/or elapsed time since initiation.

29
30 The downloading means may comprise fibre-optic cable
31 means, infra-red broadcast or beam transmission means,
32 closed-channel radio transmission means, or close-range
33 inductive coupling means. The downloading means may be
34 capable of uploading signals which may be appropriate
35 for programming or reprogramming the recording system.

36

1 According to a second aspect of the present invention
2 there is provided a method of collecting and reporting
3 information relating to the occurrence and/or timing of
4 activities, events, or conditions, said method
5 comprising the steps of:

- 6
- 7 (a) providing a recording system according to the
8 first aspect of the present invention;
- 9
- 10 (b) selecting an activity, event, or condition about
11 which information is to be collected and reported;
12
- 13 (c) operating the inputting means of said recording
14 system to input and internally store information
15 identifying or otherwise relating to the selected
16 activity, event, or condition;
- 17
- 18 (d) operating the recording means of said recording
19 system to record and internally store information
20 relating to the duration and/or time of occurrence
21 of the selected activity, event, or condition; and
22
- 23 (e) subsequently coupling the downloading means of
24 said recording system to an external computer and
25 selectively downloading the internally stored
26 information to said external computer for
27 processing of the information therein.

28

29 Where the recording means of said recording system
30 comprises clock means which indicates only elapsed time
31 since initiation (ie without indication of time of day,
32 or date) and where the selected activity, event, or
33 condition is continuous from initiation to downloading,
34 or where a plurality of selected activities, events, or
35 conditions are individually continuous and mutually
36 consecutive such as to constitute a continuous series

1 from first initiation until downloading, the external
2 computer is preferably programmed and operated to
3 calculate the absolute time and date of the initiation
4 or the respective initiation of the or each activity,
5 event, or condition by subtracting the elapsed time or
6 respective succession of elapsed times from the
7 absolute time of downloading.

8
9 Embodiments of the invention will now be described by
10 way of example, with reference to the accompanying
11 drawings wherein:-

12
13 Figs 1 and 2 are respectively a side elevation and
14 an end elevation of a portable time recording unit
15 comprising a bar-code reader;

16 Figs 3 and 4 are respectively a front elevation
17 and a side elevation of a portable time recording
18 unit having manual inputs and written or printed
19 indicia; and

20 Figs 5 and 6 are respectively a front elevation
21 and a side elevation of a portable time recording
22 unit having manual inputs and electronic
23 indicators.

24
25 The preferred embodiments of the invention comprise
26 three aspects:

- 27
28 (1)- A portable time recording unit (hereinafter
29 referred to as a "PTRU");
30 (2)- A port method (hereinafter referred to as a "PM")
31 which is actually a combination of hardware and
32 its associated operating procedures, by which
33 information can be downloaded from the PTRU to an
34 external computer; and
35 (3)- a specially-written piece of software (ie a
36 special-purpose computer program).

1 In its simplest possible form, the PTRU is a small
2 piece of equipment (preferably of a size and weight
3 enabling it to be hand-held) capable of recording a
4 series of events, including a reference identifying the
5 events, and the duration of each of these events,
6 either as an absolute temporal reference or as one
7 relative to a known point of time. The events normally
8 represent the commencement of a task or activity but
9 may represent any predetermined facet of a task or
10 activity. The PTRU digitally stores all data
11 generated. This aspect of the PTRU may be termed the
12 input function.

13
14 The PTRU must also have the capability of transmitting
15 the event records, through the PM, to the software.
16 This aspect of the PTRU may be termed the output
17 function.

18
19 The above-detailed input and output functions represent
20 the primary facilities covered by the invention. An
21 example of a further element useful to a practical
22 implementation is a visual indication of the event,
23 task or activity currently recorded. There follows
24 three practical realizations of the PTRU, which
25 illustrate various means of achieving the input
26 function.

27
28 Referring now to Figs 1 and 2, these illustrate a first
29 embodiment of a PTRU arrangement 10 in which the
30 information input function is achieved by inputting
31 means in the form of a bar-code reading device 12
32 (Fig. 1) integrally mounted at one end of the PTRU 10.
33 To use the PTRU 10 to collect information, the PTRU is
34 held in the user's hand and the reading device 12 is
35 drawn across a selected bar-code (not shown) in a menu
36 of pre-printed bar-codes each signifying a different

1 activity, event, or condition. The PTRU 10 includes an
2 LCD (Liquid Crystal Display) 14 in one face to display
3 a decoded version of the newly-read bar-code (shown in
4 Fig. 1 by way of example as "JONES"). The LCD 14
5 allows the user to check the correctness of the
6 selection of bar-code, and the correct inputting of its
7 information.

8
9 Simultaneously with the reading of the bar-code by the
10 reading device 12, an internal clock (not shown)
11 forming part of the PTRU 10 is initiated to record the
12 instantaneous absolute time (ie time of day, and date).
13 The recorded time is associated in the internal memory
14 or information storage unit (not shown) of the PTRU
15 with the information from the newly-read bar-code to
16 correlate the respective items of information, such
17 that these items will subsequently be downloaded
18 together.

19
20 Additionally or alternatively to recording absolute
21 time, the clock can be started to record elapsed time
22 from the reading of the bar-code (in a manner analogous
23 to use of a stop-watch).

24
25 By suitably modifying or substituting the bar-code
26 reading device 12, the PTRU 10 can be adapted to
27 operation with alternative forms of machine-readable
28 indicia (not shown), eg encoded magnetic strips.

29
30 At an appropriate subsequent time, the foregoing
31 procedure for operating the PTRU 10 is repeated in
32 conjunction with another bar-code (or alternative
33 machine-readable indicia) whose information content
34 signifies "end of charging period" or an analogous
35 command message.

36

1 When it is subsequently intended to download the
2 information input to and stored in the PTRU 10, the
3 PTRU 10 is transported to a suitable PTRU reading
4 terminal (not shown) and coupled thereto by means of a
5 suitable PM connector 16 (Fig. 2) integrally mounted in
6 the end of the PTRU 10 opposite the reading device 12.
7 The connector 16 provides an information transmission
8 path for downloading stored information from the PTRU
9 10 into the terminal according to the predetermined PM
10 ("port method). Thereafter the downloaded information
11 can be computer processed.

12
13 Referring now to Figs 3 and 4, these illustrate a
14 second embodiment of the PTRU 20 which is designed and
15 arranged to record activities, events, or conditions by
16 means of the manual operation of a selected
17 push-button. As shown in Fig. 3, the PTRU 20 has eight
18 push-button switches 22 arranged in two columns on the
19 face of the PTRU 20. In a respective row to the right
20 of each of the push-button switches 22 is an indicator
21 lamp 24 and a label 26. Depression of a selected one
22 of the push-button switches 22 causes illumination of
23 the respective lamp 24 to provide a visual indication
24 of switch operation to initiate recording of time in
25 respect of a specific activity, event, or condition as
26 denoted on the respective horizontally adjacent label
27 26.

28
29 The indicator lamp 24 may be substituted by alternative
30 forms of indicator.

31
32 The labels 26 may be hand-written or otherwise marked
33 (eg the labels 26 may be typed or printed).

34
35 Instead of the push-button switches 22 representing up
36 to eight different activities, etc, they could be

1 allocated to two or more groups, with each group having
2 a different function allocated to it. For example,
3 suppose one column of four of the push-button switches
4 22 (designated A1, A2, A3 and A4) are respectively
5 allocated to one of four different activities, and the
6 other column of four of the push-button switches 22
7 (designated C1, C2, C3 and C4) are respectively
8 allocated to one of four different clients. With this
9 organisational arrangement, use of the PTRU 20 to
10 record activity A2 on behalf of client C4 could be
11 initiated by the simultaneous depression of push-button
12 switches 'A2' and 'C4'.

13

14 At the conclusion of the charging period (eg at the
15 termination of an activity, etc, or transfer of a
16 continuing activity to the account of a different
17 client), charging can be stopped in respect of that
18 client and immediately transferred to a new client, or
19 to a general category to achieve a contiguous record,
20 by depression of an appropriately allocated one of the
21 push-button switches 22.

22

23 When it is subsequently intended to download the
24 information input to and stored in the PTRU 20, the
25 PTRU 20 is transported to a suitable PTRU reading
26 terminal (not shown) and coupled thereto by means of a
27 suitable PM connector 28 (Fig. 4) integrally mounted in
28 one end of the PTRU 20. The connector 28 provides an
29 information transmission path for downloading stored
30 information from the PTRU 20 into the terminal
31 according to the predetermined PM ("port method").
32 Thereafter the downloaded information can be computer
33 processed.

34

35 Referring now to Figs 5 and 6, these illustrate a third
36 embodiment of a PTRU 30 in which electronic display

1 devices are utilised to indicate the current client and
2 activity, etc. Mounted in the face of the PTRU 30
3 (Fig. 5) are a first LCD 32 and a second LCD 34.
4 Alongside each of the LCDs 32 and 34 are a respective
5 pair of push-button switches 36 and 38. Information to
6 be displayed on each of the LCDs 32 and 34 are
7 contained within the internal memory (not shown) of the
8 PTRU 30 in the form of respective lists of words,
9 codes, names, activities, events, conditions, or other
10 descriptors, etc. Operation of the appropriate one of
11 the push-button switches in each pair 36 and 38 causes
12 the respective display 32 or 34 to scroll up or down
13 the respective list until push-button depression is
14 terminated upon an intended display being reached and
15 observed on the respective display. When both displays
16 36 and 38 show intended selections, a further
17 push-button switch 40 is depressed to initiate time
18 recording against the selected allocation. As shown by
19 way of example in Fig. 5, client "JONES" is having the
20 activity "DRAUGHTING" charged to him. In an
21 alternative operational arrangement, the selection of
22 job and client could be carried out within a set period
23 after push-button switch 40 is used to initiate time
24 recording.

25
26 As compared to the first and second embodiments, the
27 third embodiment of PTRU 30 has the advantages of
28 allowing an indefinitely large number of items of
29 information (eg, client names, types of activity, etc)
30 without the previous limitation of one item per
31 bar-code or push-button switch. In other words, the
32 third embodiment enables variables to be stored in
33 internal memory as virtual items selectable by
34 scrolling, and does not depend on having a respective
35 switch or other item of physical hardware for each
36 item. The displays 32 and 34 may also be utilised to

1 review internally stored information.

2

3 At some suitable selected subsequent time, information
4 recorded and stored in the PTRU 30 is downloaded to a
5 PTRU-reading terminal (not shown) by means of a PM
6 connector 42 (Fig. 6) forming part of the PTRU 30. The
7 connector 42 provides an information transmission path
8 for downloading stored information from the PTRU 30
9 into the terminal according to the predetermined PM
10 ("port method"). The downloaded information can
11 thereafter be computer processed. The PM connector 42
12 also allows uploading of information, data and
13 programming instructions to the PTRU 30, thus enabling
14 (for example) updating and alteration of the internally
15 stored lists of names, activities, etc, previously
16 described, and/or modification of operational aspects
17 of the PTRU 30.

18

19 In the first, second and third embodiments described
20 above, there was a manual aspect to each inputting
21 means (eg manual swiping of a bar-code, manual
22 depression of a push-button). It is within the scope
23 of the invention to utilise inputting means of the
24 other kinds, eg voice recognition means enabling input
25 to be made verbally.

26

27 Input arrangements, including those detailed above, may
28 be enhanced by the inclusion of a buzzer, or other
29 noise-making device, making a sound, either on a
30 regular basis or on a random basis, to draw the user's
31 attention to the PTRU. Once attention is gained, the
32 user may ensure that the current recording accurately
33 reflects the present task or activity. The timing of
34 this reminder buzzer may be under control of the user,
35 programmed at the PTRU, or programmed on the computer
36 and later sent to the PTRU by the PM.

1 The presence of a buzzer within the PTRU, or other
2 methods of drawing the attention of the user to the
3 PTRU, offers an alternative mode of operation. In this
4 mode, the current activity is recorded on the PTRU only
5 following the sounding of the buzzer. The sounding may
6 be programmed to occur at regular intervals, according
7 to a pre-determined pattern, or randomly. Thus
8 statistical information on the activities, events or
9 conditions is arrived at. In a further variation,
10 times specific to a sequence of tasks is pre-programmed
11 into the PTRU, and the PTRU sounds a prompt to indicate
12 to the user that he or she should commence phases of
13 the sequence. Commencement may be confirmed by the
14 user on the PTRU for later reporting.

15
16 The 'Port Method' is the means by which information,
17 which may include operational parameters such as
18 battery condition, is transferred from the PTRU to the
19 computer (the PTRU's output function). In its simplest
20 form, the PM need only allow information to flow from
21 PTRU to the computer although in some applications data
22 must flow from computer to the PTRU to allow the
23 programming and configuration of the PTRU. Examples of
24 programming and configuration include setting of
25 parameters held within the PTRU such as PTRU reference
26 number or reminder buzzer duration and frequency.
27 Another important example, in PTRUs that record more
28 than one level of reference (such as the
29 client/activity combinations referred to in the
30 descriptions of the second and third embodiments) is
31 the ability to "screen out" certain key permutations,
32 which are deemed to be impermissible.

33
34 Suitable methods for transmission of the data include:

35
36 (a) a readily attached and detached electrical or

- 1 fibre optic cable, with data transmission by
2 direct electrical connection or optical means;
3 (b) broadly spread infra-red data transmission which
4 can be rendered active when PTRU and computer are
5 in proximity;
6 (c) closed-channel radio transmission;
7 (d) close inductive coupling;
8 (e) adaptation to enable use of cabled and radio
9 telephone links;
10 (f) audio/ultrasonic links.

11

12 Connection methods to PTRU and to the computer would
13 vary according to the methods utilised, but as the PTRU
14 is likely to be battery powered, where possible the PM
15 should utilise such power as is available from the
16 computer while data is being transferred.

17

18 The advantages of the invention and/or the ways in
19 which the disadvantages of previously known arrangement
20 are overcome, include:-

21

- 22 - immediate recording of time information;
23 previously known arrangements often required
24 recording from memory, or following and
25 intermediate temporary storage of information
26 - portability of the means of recording; practical
27 realizations of the invention allow the recording
28 to take place in any location, in contrast to
29 previously known arrangements which may be
30 impossible, inconvenient or impractical to have
31 present at the time of recording
32 - reduces the effort and time required by users
33 - simplicity of recording; previously known
34 arrangements require knowledge and understanding
35 of computer systems
36 - the PTRU performs a specific function, and that

1 function only, meaning that it is always available
2 when required.

3
4
5 The preferred embodiments described above with
6 reference to Figs 1-6 have referred to conventional
7 work-charging but the invention can also be applied to
8 quite different activities etc, and to the recording of
9 respective times and durations. For example, in a
10 medical experiment monitoring the effects of continuing
11 pain relief, the invention can be used to record the
12 patient's current perceived level of discomfort (eg
13 "negligible", "mild", "severe"), together with the
14 duration and timing of the periods spent at each such
15 discomfort level, and the timing of medication (eg
16 doses of analgesic). As another example of possible
17 applications of the invention, a psychological
18 experiment could employ the invention to record the
19 timing and duration of different forms of interaction
20 between a mother and child, eg physical contact of
21 various kinds, verbal contact, etc.

22
23 While certain preferred embodiments have been described
24 above, the invention is not restricted thereto, in that
25 modifications and variations can be adopted without
26 departing from the scope of the invention as defined in
27 the appended claims.

1 CLAIMS

2

3 1. A recording system for the collection and
4 reporting of information relating to the occurrence
5 and/or timing of activities, events, or conditions, the
6 recording system comprising

7

8 (a) inputting means for inputting and internally
9 storing information identifying or otherwise
10 relating to an activity, event, or condition;

11

12 (b) recording means for recording and internally
13 storing information relating to the duration
14 and/or time of occurrence of said activity, event,
15 or condition; and

16

17 (c) downloading means for subsequently and selectively
18 downloading the internally stored information to
19 an external computer for processing of the
20 information therein.

21

22 2. A recording system as claimed in Claim 1 wherein
23 said inputting means comprises a plurality of input
24 means, each said input means being associated with a
25 preselected activity, event, or condition.

26

27 3. A recording system as claimed in Claim 2 wherein
28 each said input means is capable of being associated
29 with selected types and/or classes of activity, event,
30 or condition.

31

32 4. A recording system as claimed in any preceding
33 claim wherein said inputting means contains a source of
34 pre-stored signals representing predetermined
35 activities, events, or conditions, and the source is
36 such that a predetermined signal may be selected by

1 scrolling through the pre-stored signals.

2

3 5. A recording system as claimed in any preceding
4 claim wherein said inputting means includes audio
5 signal generation means operable to indicate correct
6 selection of an input means and/or to indicate the
7 elapse of a predetermined period of time associated
8 with a particular activity, event, or condition.

9

10 6. A recording system as claimed in any preceding
11 claim wherein the inputting means comprises a bar-code
12 reader means comprising visual display means operable
13 to display a de-coded reading or to display an
14 alternative message otherwise indicative of a read
15 bar-code.

16

17 7. A recording system as claimed in any preceding
18 claim wherein the recording means comprises clock means
19 which may indicate absolute time (ie time of day, and
20 date) and/or elapsed time since initiation.

21

22 8. A recording system as claimed in any preceding
23 claim wherein the downloading means comprises
24 fibre-optic cable means, infra-red broadcast or beam
25 transmission means, closed-channel radio transmission
26 means, or close-range inductive coupling means.

27

28 9. A recording system as claimed in any preceding
29 claim wherein the downloading means is capable of
30 uploading signals which may be appropriate for
31 programming or reprogramming the recording system.

32

33 10. A method of collecting and reporting information
34 relating to the occurrence and/or timing of activities,
35 events, or conditions, said method comprising the steps
36 of:

- 1 (a) providing a recording system as claimed in any
2 preceding claim;
3
- 4 (b) selecting an activity, event, or condition about
5 which information is to be collected and reported;
6
- 7 (c) operating the inputting means of said recording
8 system to input and internally store information
9 identifying or otherwise relating to the selected
10 activity, event, or condition;
11
- 12 (d) operating the recording means of said recording
13 system to record and internally store information
14 relating to the duration and/or time of occurrence
15 of the selected activity, event, or condition; and
16
- 17 (e) subsequently coupling the downloading means of
18 said recording system to an external computer and
19 selectively downloading the internally stored
20 information to said external computer for
21 processing of the information therein.
22
- 23 11. A method as claimed in Claim 10 where the
24 recording means of said recording system comprises
25 clock means which indicates only elapsed time since
26 initiation (ie without indication of time of day, or
27 date) and where the selected activity, event, or
28 condition is continuous from initiation to downloading,
29 or where a plurality of selected activities, events, or
30 conditions are individually continuous and mutually
31 consecutive such as to constitute a continuous series
32 from first initiation until downloading, the external
33 computer being programmed and operated to calculate the
34 absolute time and date of the initiation or the
35 respective initiation of the or each activity, event,
36 or condition by subtracting the elapsed time or

- 1 respective succession of elapsed times from the
- 2 absolute time of downloading.
- 3

1 / 3

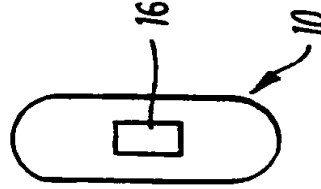


Fig. 2

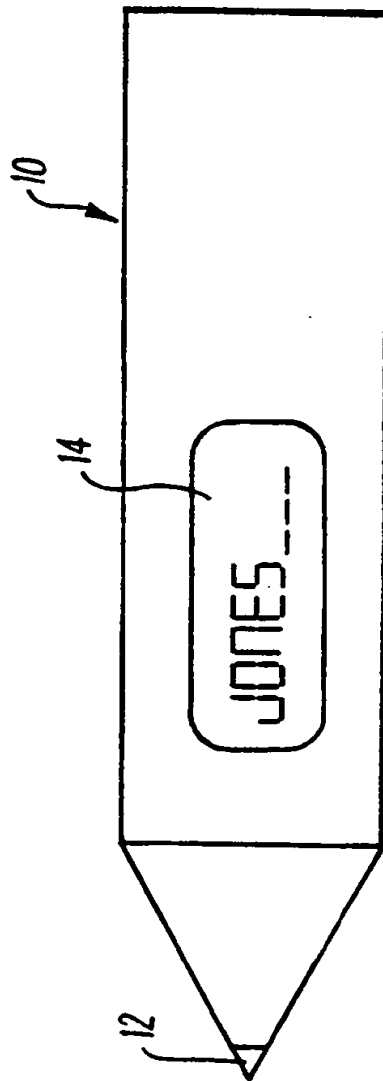


Fig. 1

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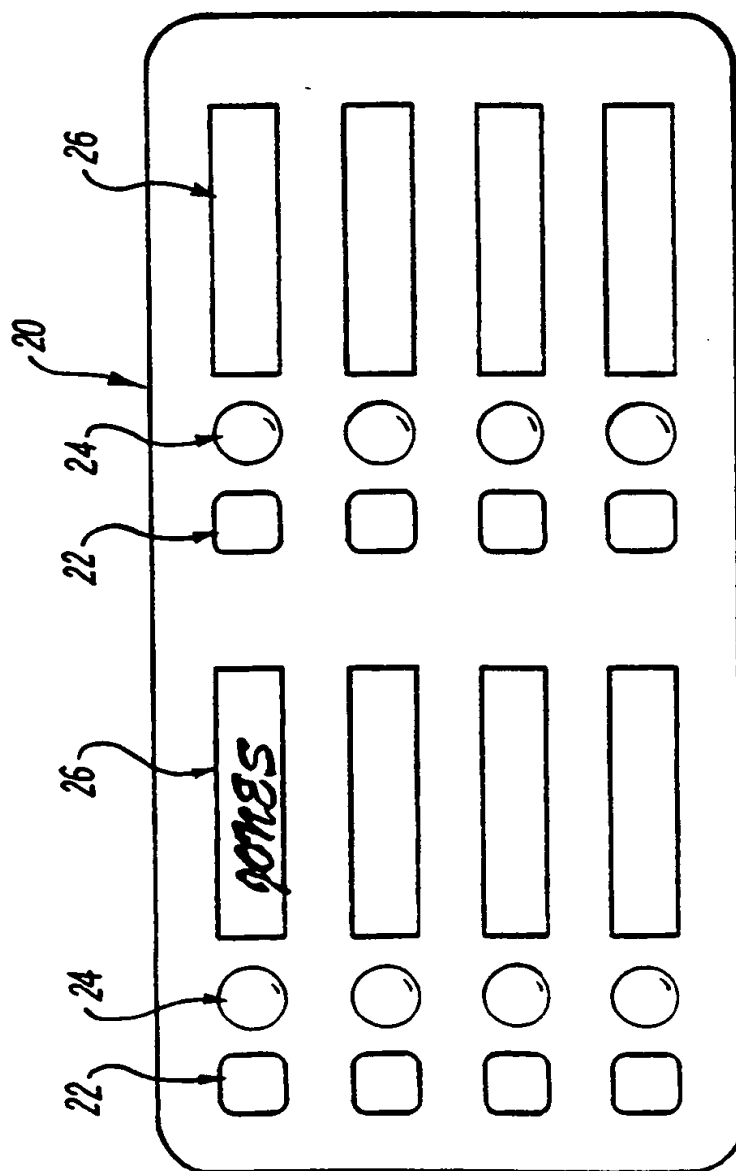


Fig. 3

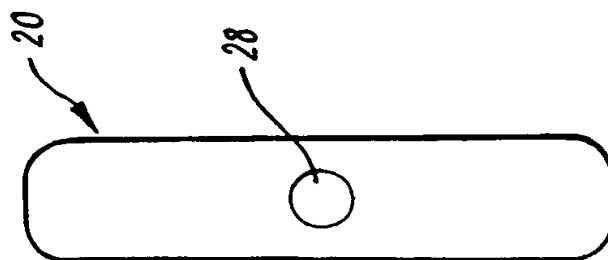
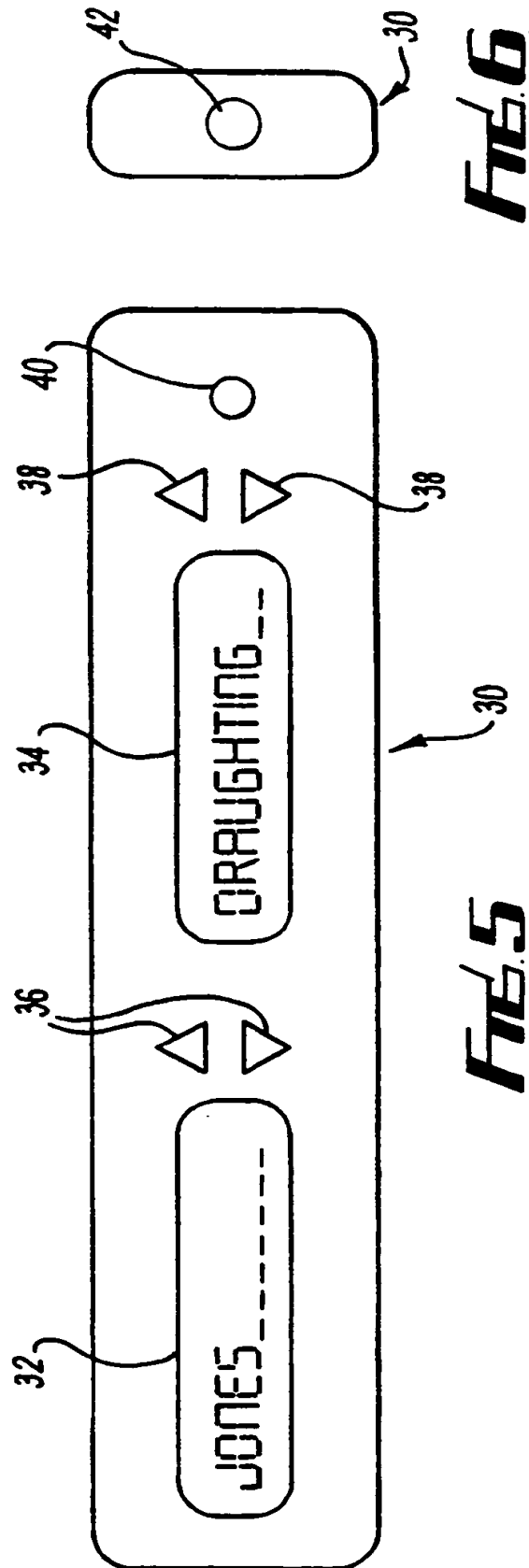


Fig. 4

SUBSTITUTE SHEET (RULE 26)



INTERNATIONAL SEARCH REPORT

Internat'l Application No

PCT/GB 96/01947

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 G07C1/10

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 G07C G06K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE,A,44 43 850 (TRINITY DATENSYSYSTEME GMBH) 20 July 1995 see abstract; claims; figures see column 1, line 28 - column 5, line 26	1-5,7-10
A	---	6,11
X	WO,A,94 00827 (SQUIBBS ROBERT FRANCIS ;HEPWORTH JOHN MALCOLM (GB)) 6 January 1994 see abstract; claims; figures see page 6, line 23 - page 9, line 21	1,6,7,10
Y	---	2-5,11
X	US,A,4 115 870 (LOWELL ARTHUR C) 19 September 1978 see abstract; claims; figures see column 1, line 27 - column 3, line 10	1-4,7,10
A	---	11
	--- -/--	

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

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T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

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Date of the actual completion of the international search

10 December 1996

Date of mailing of the international search report

20. 12. 96

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Meyl, D

INTERNATIONAL SEARCH REPORT

International Application No

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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X	CH,A,673 164 (HTP HIGH TECHNOLOGY PARTNERS A) 15 February 1990 see page 3, column 1, line 25 - page 4, column 2, line 58	1,2,6-8, 10
X	---	
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Y	---	
Y	GB,A,2 008 815 (BULLOCK N E;BRISTOL S M) 6 June 1979 see abstract; claims; figures see page 1, line 100 - page 4, line 58	2-4,11
A	---	1,10
Y	---	
Y	US,A,4 197 561 (MCMULLEN JOHN W G ET AL) 8 April 1980 see abstract; claims; figures see column 4, line 48 - line 53	5

Form PCT/ISA/210 (continuation of second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 96/01947

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US-A-4115870	19-09-78	NONE	
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US-A-4197561	08-04-80	NONE	

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